

AVHRR Product

This sample is an abbreviated form of a metadata record that includes more complete information than is shown here. It was abbreviated to show the essential elements for CoRIS, plus a few optional fields.

Identification_Information:

Citation:

Citation_Information:

Originator: NOAA Coral Reef Watch Program

NOAA National Environmental Satellite Data and Information Service

Publication_Date: 20010602

Title: Archived NOAA Twice-Weekly Satellite 50km Near Real-Time Coral Bleaching
HotSpot Charts (Eastern Hemisphere) 2003

Edition: One

Geospatial_Data_Presentation_Form: remote sensing image

Publication_Information:

Publication_Place: Suitland, Maryland, USA

Publisher: NOAA Coral Reef Watch Program

Online_Linkage: <http://www.osdpd.noaa.gov/PSB/EPS/SST/climohot.html>

Description:

Abstract:

This product is the graphic display of an experimental satellite twice-weekly Coral Reef Bleaching HotSpots field of the Eastern Hemisphere at 50km resolution. The Coral Reef Bleaching HotSpot is a special type of sea surface temperature anomaly and is the difference of the sea surface temperature compared to a static SST climatology called Maximum Monthly Mean SST Climatology (MMMSST) that serves as a coral reef bleaching related threshold. Only the positive HotSpot anomalies are highlighted in the chart.

Experimental satellite twice-weekly 50km nighttime sea surface temperature (SST) field derived from satellite remotely sensed data from Advanced Very High Resolution Radiometer (AVHRR) carried on NOAA's Polar Orbiting Environmental Satellite (POES), NOAA-16, is used to derive this Coral Reef Bleaching HotSpot product. This chart and the corresponding sea surface temperature field are archived copies of the near real-time products produced twice-weekly.

Nighttime SST observations are used for producing the product to eliminate the diurnal variation caused by diurnal solar heating at the sea surface (primarily at the "skin" interface, 10-20 μ m). More conservative assessment and prediction can be made from nighttime SST observations. For the same reason and consistency the MMMSST climatology used is also derived from nighttime SST.

The product is an archived copy of HotSpot charts produced twice-weekly in a near real-time fashion on every Tuesday and Saturday as the corresponding SST field does. The AVHRR-derived SST observations from the previous Saturday through the previous Monday are used for updating the SST field produced on Tuesdays and the observations from the previous Tuesday through the previous Friday are for Saturdays. For a twice-weekly period, at the pixels where no observation from the period due to cloud cover or other quality controls are available for updating SST values, the SSTs from the previous twice-weekly SST field at the corresponding pixels are processed to estimate the SST values at that time. As a result, complete twice-weekly SST field and Coral Reef bleaching HotSpot field are always presented.

Purpose:

The product was primarily developed as an NOAA Coral Reef Watch Program's thermally-induced coral reef bleaching early warning and assessment product along with other products including SST, SST anomaly, Degree Heating Weeks, Tropical Coral Bleaching Indices, and SST time series.

Products are intended for federal, state, and local government environmental decision makers, researchers, educators, resource managers, recreational users, and all others who are interested in it.

Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20030101

Ending_Date: 20031231

Currentness_Reference: publication date

Status:

Progress: Complete

Maintenance_and_Update_Frequency: none planned

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: 0.0

East_Bounding_Coordinate: 180.0

North_Bounding_Coordinate: 45.0

South_Bounding_Coordinate: -45.0

Keywords:

Theme:

Theme_Keyword_Thesaurus: CoRIS Discovery Keyword Thesaurus 1.0

Theme_Keyword: Map Images > AVHRR

Theme:

Theme_Keyword_Thesaurus: CoRIS Theme Keyword Thesaurus 1.0

Theme_Keyword: EARTH SCIENCE > Biosphere > Zoology > Corals > Coral Diseases > Bleaching > Bleaching HotSpot

Theme_Keyword: EARTH SCIENCE > Oceans > Ocean Temperature > Sea Surface Temperature

Theme_Keyword: coral reef

Theme_Keyword: coral bleaching

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: Coral Reef Watch

Theme_Keyword: remote sensing

Theme_Keyword: satellite

Theme_Keyword: POES

Theme_Keyword: Polar Orbiting Environmental Satellite

Theme_Keyword: NOAA-16

Theme_Keyword: image

Theme_Keyword: map

Theme_Keyword: chart

Theme_Keyword: AVHRR

Theme_Keyword: SST

Theme_Keyword: sea surface

Theme_Keyword: sea surface temperature

Theme_Keyword: HotSpot

Theme_Keyword: coral reef bleaching HotSpot

Theme_Keyword: oceanography

Theme_Keyword: coral reef

Theme_Keyword: bleaching

Theme_Keyword: monitoring

Theme_Keyword: temperature

Theme_Keyword: thermal

Theme_Keyword: stress

Theme_Keyword: NOAA

Place:

Place_Keyword_Thesaurus: CoRIS Place Keyword Thesaurus Version 1.0

Place_Keyword: Pacific Ocean
Place_Keyword: Atlantic Ocean
Place_Keyword: Indian Ocean

Place:

Place_Keyword_Thesaurus: none
Place_Keyword: eastern hemisphere
Place_Keyword: Pacific Ocean
Place_Keyword: Atlantic Ocean
Place_Keyword: Indian Ocean

Access_Constraints: none

Use_Constraints:

Not intended for legal use. Data may contain inaccuracies due to clouded or mixed pixels.

Point_of_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Person: Alan E. Strong, NOAA Coral Reef Watch Program Manager
Contact_Organization: NOAA Coral Reef Watch Program

Contact_Address:

Address_Type: mailing and physical address
Address: NOAA E/RA3, Room 711, 5200 Auth Road
City: Camp Springs
State_or_Province: Maryland
Postal_Code: 20746
Country: USA

Contact_Voice_Telephone: 301-763-8102 ext 170

Contact_Facsimile_Telephone: 301-763-8108

Contact_Electronic_Mail_Address: Alan.E.Strong@noaa.gov

Browse_Graphic:

Browse_Graphic_File_Name:

<http://www.osdpd.noaa.gov/PSB/EPS/SST/data/hotspote.6.2.2001.gif>

Browse_Graphic_File_Description:

The chart is the full-size archived "NOAA Experimental Satellite
Twice-Weekly 50km Coral Reef Bleaching HotSpot Chart (Eastern Hemisphere)

Browse_Graphic_File_Type: GIF

Data_Quality_Information:

Attribute_Accuracy:

Attribute_Accuracy_Report: The accuracy of the coral bleaching HotSpot depends on both SST and the coral bleaching threshold SST climatology. No estimation on the HotSpot has been done yet although it has demonstrated remarkable preliminary success in denoting most bleaching events.

Polar Orbiting Environmental Satellite (POES) AVHRR-SST values are accurate to within 0.5 degrees C and adjusted by in-situ information (buoys) to best-approximate SST at a depth of 1 meter. However, to provide a complete global coverage, estimation of SSTs at all pixels that are cloud covered may occasionally reduce the accuracy of SST at these pixels.

Logical_Consistency_Report: none

Completeness_Report: Selected references are as follows.

- 1) Strong, A. E., C. S. Barrientos, C. Duda, and J. Sapper, 1997: Improved Satellite Technique for Monitoring Coral Reef Bleaching. Proc 8th International Coral Reef Symposium 2:1495-1498. Available also online at URL http://www.osdpd.noaa.gov/PSB/EPS/SST/icrs_dud.html
- 2) Toscano, M. A., A. E. Strong, I. C. Guch, 1999: New Analyses for Ocean HotSpots and Coral Reef Bleaching. Reef Encounter, 26, 31.
- 3) "New AVHRR Product -- Coral Reef Hotspots" by A. E. Strong and C. Duda, available at the URL http://www.osdpd.noaa.gov/PSB/EPS/SST/ashe_ab.html

4) The information for the AVHRR-derived sea surface temperature is described in the following user's guide.

Goodrum G., K. B. Kidwell, and W. Winston, 2000, NOAA KLM USER'S GUIDE. U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Environmental Satellite, Data, and Information Service, National Climatic Data Center, Climate Services Division, Satellite Services Branch, FOB3, Room G227, E/CC33, 5200 Auth Road, Suitland, MD 20746-4304, USA. This manual is available on line at <http://www2.ncdc.noaa.gov/docs/klm/cover.htm>. To request additional information contact: Telephone: (828) 271-4850, Telefax: (828) 271-4876, Email: satorder@ncdc.noaa.gov.

Positional_Accuracy:

Horizontal_Positional_Accuracy:

Horizontal_Positional_Accuracy_Report: Users are referred to the following guide on AVHRR-derived sea surface temperature. Goodrum G., K. B. Kidwell, and W. Winston, 2000, NOAA KLM USER'S GUIDE. U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Environmental Satellite, Data, and Information Service, National Climatic Data Center, Climate Services Division, Satellite Services Branch, FOB3, Room G227, E/CC33, 5200 Auth Road, Suitland, MD 20746-4304, USA. This manual is available on line at <http://www2.ncdc.noaa.gov/docs/klm/cover.htm>. To request additional information contact: Telephone: (828) 271-4850, Telefax: (828) 271-4876, Email: satorder@ncdc.noaa.gov.

Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: none

Lineage:

Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA Coral Reef Watch Program

NOAA/NESDIS

Publication_Date: 19970101

Title: NOAA Twice-Weekly Satellite 50km Near Real-Time Coral Bleaching

HotSpots (Global)

Edition: one

Geospatial_Data_Presentation_Form: data file

Publication_Information:

Publication_Place: Suitland, Maryland, USA

Publisher: NOAA Coral Reef Watch Program

Type_of_Source_Media: data file

Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20030101

Ending_Date: 20031231

Source_Currentness_Reference: publication date

Source_Citation_Abbreviation: NOAA Satellite Near Real-Time Coral Bleaching

HotSpots (Global)

Source_Contribution: The charts are graphic displays of the corresponding source data.

Source_Information:

Source_Citation:

Citation_Information:

Originator: NOAA Coral Reef Watch Program

NOAA/NESDIS

Publication_Date: 19970101

Title: NOAA Twice-Weekly Satellite 50km Near Real-Time Nighttime

AVHRR Sea Surface Temperatures (Global)

Edition: one

Geospatial_Data_Presentation_Form: data file

Publication_Information:

Publication_Place: Suitland, Maryland, USA

Publisher: NOAA Coral Reef Watch Program

Type_of_Source_Media: data file

Source_Time_Period_of_Content:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 20030101

Ending_Date: 20031231

Source_Currentness_Reference: publication date

Source_Citation_Abbreviation: NOAA Satellite Near Real-Time Nighttime AVHRR
SSTs (Global)

Source_Contribution: The products were derived from these source data.

Process_Step:

Process_Description: At each pixel, coral bleaching threshold sea surface temperature climatologic value is subtracted from AVHRR sea surface temperature value to produce coral bleaching HotSpot value. The HotSpots are then visualized in the HotSpot chart. Some references are listed below.

1) Strong, A. E., C. S. Barrientos, C. Duda, and J. Sapper, 1997:

Improved Satellite Technique for Monitoring Coral Reef Bleaching.

Proc 8th International Coral Reef Symposium 2:1495-1498. Available also online at URL

http://www.osdpd.noaa.gov/PSB/EPS/SST/icrs_dud.html

2) Toscano, M. A., A. E. Strong, I. C. Guch, 1999: New Analyses for Ocean HotSpots and Coral Reef Bleaching. Reef Encounter, 26, 31.

3) "New AVHRR Product -- Coral Reef Hotspots" by A. E. Strong and C. Duda, available at the URL http://www.osdpd.noaa.gov/PSB/EPS/SST/ashe_ab.html

4) The information for the AVHRR-derived sea surface temperature is described in the following user's guide.

Goodrum G., K. B. Kidwell, and W. Winston, 2000, NOAA KLM USER'S GUIDE.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Environmental Satellite, Data, and Information

Service, National Climatic Data Center, Climate Services Division,

Satellite Services Branch, FOB3, Room G227, E/CC33, 5200 Auth Road,

Suitland, MD 20746-4304, USA. This manual is available on line at

<http://www2.ncdc.noaa.gov/docs/klm/cover.htm>. To request additional

information contact: Telephone: (828) 271-4850, Telefax:

(828) 271-4876, Email: satorder@ncdc.noaa.gov.

Source_Used_Citation_Abbreviation: NOAA Satellite Near Real-Time Coral Bleaching HotSpots (Global)

Source_Used_Citation_Abbreviation: NOAA Satellite Near Real-Time Nighttime AVHRR SSTs (Global)

Process_Date: 20030101

Process_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: NOAA Coral Reef Watch Program

Contact_Person: Alan E. Strong, NOAA Coral Reef Watch Program Manager

Contact_Address:

Address_Type: mailing and physical address

Address: NOAA E/RA3, Room 711, 5200 Auth Road

City: Camp Springs

State_or_Province: Maryland

Postal_Code: 20746

Country: USA

Contact_Voice_Telephone: 301-763-8102 ext 170

Contact_Facsimile_Telephone: 301-763-8572

Contact_Electronic_Mail_Address: Alan.E.Strong@noaa.gov

Spatial_Data_Organization_Information:

Direct_Spatial_Reference_Method: Raster

Raster_Object_Information:

Raster_Object_Type: Grid Cell

Row_Count: 550

Column_Count: 900

Spatial_Reference_Information:

Horizontal_Coordinate_System_Definition:

Geographic:

Latitude_Resolution: 0.5

Longitude_Resolution: 0.5

Geographic_Coordinate_Units: Decimal Degrees

Entity_and_Attribute_Information:

Detailed_Description:

Entity_Type:

Entity_Type_Label: Coral Reef Bleaching HotSpot grid cell

Entity_Type_Definition: any of the one-byte data elements in the Coral Reef Bleaching HotSpot files

Entity_Type_Definition_Source: self-evident

Attribute:

Attribute_Label: Coral Reef Bleaching HotSpot grid cell value

Attribute_Definition: The Coral Reef Bleaching HotSpot in the location indicated by the pixel.

In the original HotSpot data file, the unit of bleaching HotSpot value is in degrees Celsius and the values are converted into digital numbers between 0 through 255 to be presented in gif image format.

Attribute_Definition_Source: 1) Strong, A. E., C. S. Barrientos, C. Duda, and J. Sapper, 1997: Improved Satellite Technique for Monitoring Coral Reef Bleaching. Proc 8th International Coral Reef Symposium 2:1495-1498. Available also online at URL

http://www.osdpd.noaa.gov/PSB/EPS/SST/icrs_dud.html

2) Toscano, M. A., A. E. Strong, I. C. Guch, 1999: New Analyses for Ocean HotSpots and Coral Reef Bleaching. Reef Encounter, 26, 31.

3) "New AVHRR Product -- Coral Reef Hotspots" by A. E. Strong and C. Duda, available at the URL http://www.osdpd.noaa.gov/PSB/EPS/SST/ashe_ab.html

4) The information for the AVHRR-derived sea surface temperature is described in the following user's guide.

Goodrum G., K. B. Kidwell, and W. Winston, 2000, NOAA KLM USER'S GUIDE. U.S. Department of Commerce, National Oceanic and Atmospheric Administration National Environmental Satellite, Data, and Information Service, National Climatic Data Center, Climate Services Division, Satellite Services Branch, FOB3, Room G227, E/CC33, 5200 Auth Road, Suitland, MD 20746-4304, USA. This manual is available online at <http://www2.ncdc.noaa.gov/docs/klm/cover.htm>. To request additional information contact: Telephone: (828) 271-4850, Telefax: (828) 271-4876, Email: satorder@ncdc.noaa.gov.

Attribute_Domain_Values:

Range_Domain:

Range_Domain_Minimum: 0

Range_Domain_Maximum: 255

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Person: Alan E. Strong, NOAA Coral Reef Watch Program Manager

Contact_Organization: NOAA Coral Reef Watch Program

Contact_Address:

Address_Type: mailing and physical address

Address: NOAA E/RA3, Room 711, 5200 Auth Road

City: Camp Springs

State_or_Province: Maryland

Postal_Code: 20746

Country: USA

Contact_Voice_Telephone: 301-763-8102 ext 170

Contact_Facsimile_Telephone: 301-763-8108

Contact_Electronic_Mail_Address: Alan.E.Strong@noaa.gov

Distribution_Liability:

NOAA makes no warranty regarding these data, expressed or implied, nor does the fact of distribution constitute such a warranty. NOAA cannot assume liability for any damages caused by any errors or omissions in these data, nor as a result of the failure of these data to function on a particular system.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: GIF format

Format_Information_Content: Coral Reef Bleaching HotSpot

Transfer_Size: 46KB

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: http://www.osdpd.noaa.gov/PSB/EPS/SST/climohot_2003.html

Offline_Option:

Offline_Media: CD-ROM

Recording_Format: none

Compatibility_Information:

The GIF format is recognized by most graphics applications.

Fees: none

Ordering_Instructions:

The product in GIF format may be downloaded from the Web site or obtained from the distributor.

Metadata_Reference_Information:

Metadata_Date: 20030120

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Person: Alan E. Strong, NOAA Coral Reef Watch Program Manager

Contact_Organization: NOAA Coral Reef Watch Program

Contact_Address:

Address_Type: mailing and physical address

Address: NOAA E/RA3, Room 711, 5200 Auth Road

City: Camp Springs

State_or_Province: Maryland

Postal_Code: 20746

Country: USA

Contact_Voice_Telephone: 301-763-8102 ext 170

Contact_Facsimile_Telephone: 301-763-8108

Contact_Electronic_Mail_Address: Alan.E.Strong@noaa.gov

Metadata_Standard_Name: FGDC CSDGM

Metadata_Standard_Version: FGDC-STD-001-1998